

FUEL-FLEXIBLE GASIFICATION-COMBUSTION TECHNOLOGY FOR PRODUCTION OF HYDROGEN AND SEQUESTRATION-READY CARBON DIOXIDE

PRIMARY PARTNER

**GE Energy and Environmental
Research Corporation**
Irvine, CA

PROJECT PARTNERS

Southern Illinois University
Carbondale, Illinois

California Energy Commission
Sacramento, California

Description

GE Energy and Environmental Research Corporation (GE-EER) will develop their advanced gasification-combustion (AGC) process to convert coal and opportunity fuels to three output streams: pure H₂, sequestration-ready CO₂, and pressurized O₂-lean air; the last stream can be used in a gas turbine to produce electricity. The AGC module consists of three fluidized bed reactors; it can readily be integrated into a number of Vision 21 power systems and offers the benefits of low cost, high efficiency, and low emissions.

Goal

The goals are to conduct lab-, bench-, and pilot-scale experiments to demonstrate the AGC concept, perform engineering analysis to develop design criteria for demonstration, and conduct economic analysis to evaluate market potential of the AGC process. Since coal and various opportunity fuels (biomass, chemical and petroleum industry wastes, MSW, etc.) will be used, resource assessment and fuel-flexibility tests are also planned.

Benefits

The proposed program focuses on developing the AGC technology for large, centrally-located Vision 21 power plants. This project is expected to generate critical information necessary to design and develop a demonstration plant that will help commercialize the AGC technology. If the AGC process is successfully demonstrated, a spin-off technology for modular, fuel-flexible, non-polluting, highly efficient, and economically viable power plants could also be built, delivered, and operated at rural/remote locations where grid electricity may be expensive or not easily available.



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Milestones

April 2001	Bench-Scale Test facility Construction
September 2001	Laboratory-Scale Experiments/ Fundamentals
September 2001	Pilot Plant Design and Engineering
September 2002	Pilot Plant Assembly
May 2003	Bench-scale testing
May 2003	Engineering and Modeling Studies
August 2003	Pilot Plant Demonstration
September 2003	Vision 21 Plant Systems Analysis
September 2003	Project Management and Reporting

